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ABSTRACT

This study took an in-depth look at the collaborative work of teachers engaged in curriculum restructuring, and explored how individual teachers' perceptions inform and are informed by such collaboration. The objective of the study was to explore how teachers' individual knowledge, experiences, and curriculum orientations affected their contributions to team curriculum decisions. A second objective was to extend the research on teaming beyond the current emphasis on organizational and administrative functioning to examine the factors that facilitate collaborative curriculum work. The project was a 1-year case study of the deliberations of a team of three sixth grade teachers. Primary data sources were four semi-structured interviews with each teacher, weekly observations of classrooms, two interviews with the principal, and analysis of relevant documents. Each of the three case studies is described in detail. Findings based on all three cases indicated: (1) a shared vision of curriculum purposes was believed by the teachers to be the key element in determining the success of the team's change efforts; (2) the teachers' personal beliefs and concerns influenced their rationales for the curriculum envisioned by the team and their choices of the means to interpret curriculum intentions; (3) the teachers' individual knowledge influenced the ways in which they interpreted the team's envisioned curriculum; (4) team collaboration was a source of shared knowledge and of joint construction of new knowledge; and (5) the teachers believed that each played a different role on the team and that the diversity contributed to the team's effectiveness. (Contains 21 references.) (ND)

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TEACHERS' COLLABORATIVE CURRICULUM DELIBERATIONS

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Teachers' Collaborative Curriculum Deliberations

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In recent years the literature of school restructuring has defined an expanded curriculum responsibility for teachers (Zumwalt, 1989; Carnegie Task Force, 1986; Holmes Group, 1986). As a result, more attention is being focused on the knowledge and beliefs which inform teachers' curriculum decisions. At the same time there has been a heightened appreciation of the value of professional collaboration and an increased use of teacher teaming (Maeroff, 1993; Erb & Doda, 1990). Although researchers have explored personal and contextual factors affecting the curriculum constructions of individual teachers, little attention has been given to the collaborative curriculum work of teams. This study of curricular teaming was intended to take advantage of a rare opportunity to gain an in-depth look at the collaborative work of teachers engaged in curriculum restructuring. It begins to explore how individual teachers' perspectives inform and are informed by such collaboration.

Objectives

An objective of this study was to explore the ways in which teachers' individual knowledge, experiences, and curriculum orientations affect their contributions to team curriculum decisions. A second objective was to extend the research on teaming beyond the current emphasis on organizational and administrative functioning to examine the factors that facilitate collaborative curriculum work. Three questions guided this study. The first two are the focus of this presentation. (1) How do teachers' knowledge, beliefs, and concerns affect the ways in which they plan and talk about curriculum? (2) When a teaching team is involved in collaborative curriculum change, how do the knowledge, beliefs, and concerns of individual teachers influence the curriculum deliberations of the team? (3) What are important variables which limit or reinforce teachers' curriculum collaboration?

Theoretical Framework

Teachers have only relatively recently been recognized as active participants in curriculum development. Paris (1993) used the term "teacher agency" to refer this emerging role. Clandinin and Connelly (1992), in a review of the literature on the teacher as curriculum maker, described a "conduit" metaphor that provides insight into how teachers have been perceived in relation to the curriculum. This metaphor suggests that teachers are merely the agents who deliver a curriculum content which they have not taken part in developing. Thus, traditionally the curriculum has been seen as an instrument of reform,and teachers have been seen as mediators between the curriculum and intended outcomes. Clandinin and Connelly rejected this separation between curriculum ends and means. Instead, they viewed the teacher as an integral part of the curricular process in which "teacher, learner, subject matter, and milieu are in dynamic interaction" (p. 392).

Connelly & Elbaz (1980) summarized a shift that has taken place in the notion of the teacher's function from that of curriculum implementor to that of decision maker and independent developer. Bolin (1987) and Connelly & Elbaz (1980) described teachers as curriculum decision makers who must negotiate differences in values and perspectives among those who have an interest in curriculum outcomes. They stressed that this curriculum negotiation takes place at all levels of curriculum planning and implementation. Teachers must be faithful to their own values, yet recognize and represent fairly the values of others such as parents, students, other educators, and the community. At the same time, all of these negotiations must take place within the practical realities of the school and classroom environments.

In this task of curriculum negotiation teachers draw upon knowledge held in individual ways and structured in terms of practical purposes (Connelly & Elbaz, 1980). Several studies have examined the relationships of teachers' beliefs and concerns to the ways they implement curriculum (Hawthorne, 1992; Bolin, 1987; Bussis, Chittenden, & Amarel, 1976). Other researchers have linked teachers' curriculum decision-making to their personal practical knowledge (Elbaz, 1981) and to their pedagogical content knowledge (Grossman, 1990; Shulman, 1987). Taken together these approaches suggest that teachers' knowledge of and orientations toward their disciplines, as well as their personal and experiential knowledge of teaching, greatly influence the kinds of curriculum that are enacted in their classes. Any study of teachers involved in curriculum development must take

into account such knowledge as it informs and is informed by the curriculum-making process.

Goodlad (1990), Rosenholtz (1989), and many others have pointed to teacher collaboration as an essential element in school improvement. Increasingly, teacher teams are being formed to carry out this collaboration. Even now, however, most studies of teachers as curriculum agents focus on individual teachers' responsibilities in their own classrooms. This study explored, not only the effects of knowledge, beliefs, and concerns on individual teachers' curriculum constructions, but also how these individual characteristics affected the curriculum deliberations of a team. The growing body of research on teaming has dealt largely with organizational concerns and with the roles and functions of teams (Maeroff, 1993; Erb & Doda, 1989; Merenbloom, 1986). There is a need to better understand the relationships between individual teachers' perspectives and knowledge and the collaborative work of teams.

Case Study Design

These questions were explored over the course of one year through a case study of the deliberations of a team of three sixth grade teachers. The team worked in a middle school located in a formerly rural area which has been experiencing rapid urbanization. They were collaborating to plan and implement a truly integrated curriculum based on themes derived from the needs and interests of young adolescents. They also envisioned a curriculum in which students would have a voice in choosing the content they studied, in which multiple assessment measures would be used, and in which evaluation of learning would be based on broad predetermined outcomes, rather than on a traditional grading system.

All three of the teacher participants brought to their team efforts a rich background of education and teaching experience. They had taught between nine and nineteen years. All had elementary certification, and all had received master's degrees from the same state university. Janis had earned a principal's certificate as well as additional endorsements in reading and in learning disabilities. Mark held a supervisor's certificate. The teachers also represented a higher than usual degree of participation in professional work outside the classroom in professional organizations and on state task forces. By selecting teachers who were well-prepared and supported in their work, we hoped to gain insight into what collaborative curriculum change can be like in favorable circumstances.

Data Collection and Analysis

The principal method of data collection was participant observation. Data was collected throughout one full year. The role of participant as observer, according to Denzin (1989) is especially well suited to the analysis of forms of interaction that are in change because it is characterized by significant and repeated interactions with the respondents in order to understand their experiences and perspectives. Primary data sources were a series of four semi-structured interviews carried out with each teacher at intervals throughout the year and frequent observations of team meetings. These were accompanied by weekly observations of classrooms, by two interviews with the principal, and by analysis of relevant documents. Member checks were carried out after each interview.

The choice of in-depth interviewing as a major strategy for data collection was due to the desire to be open to the constructions of the respondents by allowing them to take part in shaping the content of the interviews (Bogdan & Biklen, 1992). The interviews were semi-structured, using the "general interview guide approach" (Patton, 1990, p. 280). Interview guides included lists of questions which focused discussion on topics which related to the primary research interests, but specific questions varied in their wording or sequence within the interview. The use of these guides insured that comparable data was obtained from all subjects and facilitated the task of data analysis. Other advantages of the guides were that the interviews could remain conversational and that questions could be adapted to be meaningful to individual informants (Patton, 1992).

The interviews were accompanied by ongoing field observations throughout the school year. Attendance at many daily and weekly team meetings provided support for themes emerging from interview data and generated new questions to be asked. The weekly classroom visits offered opportunities to see how the meanings inherent in teachers' talk about their work found expression in their teaching and interactions with students. Data gathered during these visits also suggested developing patterns to be further explored in subsequent interviews. Data analysis involved identifying themes and constructing hypotheses as they were suggested by data and then demonstrating support for those themes and hypotheses (Bogdan & Taylor, 1975). Although I approached the inquiry with some tentative questions, the way that my respondents perceived the world made other questions important also. For this reason, the organization of the data emerged from the data itself. Techniques for identifying concepts and theorizing about relationships among

the data were similar to the analytic procedures developed by Strauss and Corbin (1991).

After each interview or observation, data was analyzed and coded in a preliminary way. Tentative categories were identified in order to organize data conceptually. When all interviews and observations were completed, transcripts were reviewed and compared in order to generate final categories to account for all the relevant data. This review process began with reviewing data for each individual, coding and recording themes and patterns as they related to research questions. Then the data for individual cases were compared with each other for similarities and differences (Patton, 1990). Demographic data was examined for correlations with results of crosscase comparisons.

Summary of Cases

The case studies provided a wealth of information which created a detailed portrait of each teacher. Individuals who had at first seemed to be almost identical in their curriculum orientations now emerged as highly idiosyncratic in their personal value systems, their instructional priorities, and their personal and professional knowledge bases. Unfortunately, it is impossible in a paper of this length to describe fully the data collected over an entire year. Therefore, in the next section of this paper an abbreviated version of each case will be presented so that through this admittedly small sampling the reader may become acquainted with the teacher participants and may gain some sense of the larger body of data. The presentation of cases will be followed by a discussion of recurring themes across cases as they are related to the research questions.

Case 1: Peggy

Peggy initiated the formation of the Integrated Team after she attended a national conference on middle school curriculum. Her motivations were based largely on her need for professional challenge and on the goals of empowering teachers and learners. The conference was held at a time when she "was getting bored" and was "reading and thinking" about middle school restructuring. At this time she was helping her school to form a professional development relationship with a local university and was also taking graduate classes at the university. Being part of the Integrated Team allowed her to implement the curriculum ideas she had been forming and provided her with

professional validation through sharing innovative practices with peers. Peggy was highly articulate and enjoyed discussing curriculum issues and her perceptions of the political and professional implications of these issues. Peggy described herself as "the conceptual person on the team...I think I'm an idea person and I think that I probably tend to be more abstract and more into the gestalt than my teammates...I get big ideas and then they are able...to take these ideas and start working them into reality." Her view of curriculum was primarily a theoretical one which was drawn both from university coursework and from experiential knowledge. "I've got this balance between wanting to know the research and the theoretical knowledge and wanting to make sense of it for myself...I want to understand the "why" behind it, but I want to make the "how." She described a curriculum which was always emerging.

> Real curriculum is a framework. It's a sense and a direction and a vision... But beyond that, I think it's a living, breathing, unfolding thing that happens not on your lesson plan book and not in a course of study and not even on that framework. The framework is a way of showing it mentally, but I think it happens in the classroom. It' s created with teachers and kids working toward a vision and idea together.

Peggy based her curriculum decisions in large part on her knowledge of middle school restructuring initiatives. Choices of content and instructional methods were to be made in response to developmental needs of early adolescents rather than on a standardized course of study. She explained her beliefs in child-centered curriculum from her perspective as a whole language teacher.

> My primary influence came from...my philosophy of language arts--about it being student-centered, student-driven, meeting kids' needs, giving kids choices, giving kids a voice, using literature and wanting to go beyond the classroom and connect with the real world.

Peggy's concern that students be prepared for "the real world" meant that she formulated desired curriculum outcomes in terms of processes and skills rather than in terms of a body of disciplinary knowledge. She maintained that "in our new age of technology and information, memorizing facts isn't going to get you anywhere" because what is learned may soon become outdated. "It's old news. So we're really about teaching kids to think and access and find the knowledge that they need."

This emphasis on process was related to the priority Peggy placed on students' "making sense" of what was learned. She believed that it was important "to get students involved in thinking and asking questions." Peggy's students were often asked to generate questions, to hypothesize about answers, to access information to check their hypotheses, and to work cooperatively to create

demonstrations of their learning. For example, she explained why she preferred to have students use trade books rather than textbooks to research topics for presentations.

> It's at a more challenging level for them to have to access the information than to just read it. In most of the textbooks you look and there's a question here and right across from it is the answer. It's really not thinking. When students use trade books they've got to pull it together and make sense of it.

Peggy's beliefs about appropriate middle school education caused her to stress the relevance of content to students' interests and to their social and affective needs.

> The content came from the kinds of things that the kids had voiced an interest in, but...it was also structured in a way that the kids had ownership and input and they served as the knowledge base on which I could build.

Her belief in giving students ownership of learning also shaped her thinking about her role as a teacher. She believed teachers should stress independent learning and should give students a voice in choosing curriculum content "...because we're not the all-givers of knowledge that know everything. We are facilitators...We don't have to find expertise and give it to them. We give them the tools with which to think, to find information and make sense of it."

In Peggy's class whole group lessons often followed a discussion format in which she posed questions to initiate student talk. Many other lessons involved tasks carried out by small heterogeneous groups. The teaching strategy often required students to choose some aspect of a broad topic, gather and synthesize information about the topic, and design and carry out a presentation or exhibition of what was learned. Sometimes the tasks involved researching the issue related to a topic, taking a position on the issue, and then orally defending it. "So instead of expecting kids to memorize and spit information out, we expect them to organize and make sense of and create and do and communicate."

Cooperative learning was important, Peggy believed, because it "prepared students for the real world" of work and because it promoted "active learning", by which she meant active thinking and participation in debating ideas rather than merely the use of concrete materials and hands-on activities. "It's not just the groupwork issue, but it's that they're actively engaged when they're

doing the groupwork. They're actually utilizing the concepts and skills that we're trying to teach...So it makes it more relevant."

She wanted also to empower students with a sense that they themselves possess valuable knowledge and experience and could use each other as knowledge sources. Peggy believed that empowerment was an important issue in "how people learn and what best facilitates that learning." Peggy frequently framed instruction in terms of political and societal issues and encouraged students to debate alternative perspectives. She also saw political issues involved in the teachers' professional development. "When you get teachers in a room and you give them a chance to talk, it's phenomenal the knowledge that's there." She suggested that the lack of opportunities for teachers to share professional knowledge "may be very intentionally in the structure to keep us in line." Teaching and learning were, for Peggy, highly political acts.

Case 2: Mark

Mark's chief reason for participation in curriculum work was based on his perception that he would be able to make his teaching more congruent with his personal philosophy which he described as "people-centered." Nurturing personal relationships was the central concern which directed his teaching and his curriculum work with his colleagues. His motivation to join the Integrated Team was also increased by his desire to work with the two other members of the team because he believed they shared his curriculum philosophy and that he could learn from them skills for "putting my philosophy into action...really trying to make it alive."

According to Mark, the greatest influence on his philosophy of teaching was his religious faith. This, he said, gave him the patience and the understanding that enabled him to respond to students empathetically. He also believed in the value of "taking the time out to be with individuals." This belief in the importance of nurturing personal relationships extended to his relationships with his colleagues. He said with regret that the team had not been able to talk often enough about personal things.

His curriculum goals were in keeping with his personal concerns. He placed a high value on communicating and on learning from other people.

> Teachers must understand that teaching is communication, relating to other people, understanding other people, your colleagues, your students, your parents. That's where it is. The other things--the other knowledge--they'll come, but the key thing is the people factor.

For Mark, students' social and emotional needs were just as important as their academic needs. Therefore his curriculum goals were based on personalizing knowledge for his students and helping them to relate their learning to their lives. Mark wanted students to understand "the give and take you have to do in life" and to learn "ways for people to get along better" in order to prepare for the world of work and for marriage and family living. "We need to try to localize it for them so that it means something to them." Discussing the factual content of history textbooks, he stressed the importance of "using those facts to understand how people reacted and asking, 'How would you react in that situation' or 'Do we have situations that are similar today and why are we reacting differently?'"

Mark endorsed a style of teaching that is "not just the disseminating of information...but applying what we're doing." He made frequent attempts to relate content to current events and community problems. During a study of environmental issues, for example, Mark's class considered the problem of waste disposal. He encouraged students to examine what is thrown away in their own homes and the packaging of items they buy. His decisions about content and instruction were made on the basis of his assessment of students' interests and backgrounds.

> I think about where the students are coming from--what will make sense to them...I have to sell them and convince them and work with them, make it entertaining, make it understandable--so they'll keep focused with it...If they're not going to buy into what you're doing, it's not gonna happen.

All three team members endorsed the idea of creating a fully integrated curriculum. Mark often said he wanted students to see all their learning as a connected whole. However, as a team member, Mark found it much more problematic to translate the goal of integration into his own individual planning. "When I was teaching by myself, I could pull it together. I could make my own puzzle. Now...my part of the puzzle has a little more meaning to it because it has to relate with the other people's puzzle. It's not just my puzzle." Sometimes it was only as he was carrying out

the team plans that he saw how his piece of the puzzle fit with the others. "Many times...as I did things, I saw how things tied together."

Mark expressed a similar discomfort with hands-on activities, which were an agreed-upon part of the team's curricular intentions. "At times I struggle with it...just keeping the same quality as the other people I'm working with..." This year he was searching for new teaching methods, and , as one would expect from his belief in learning from other people, he usually turned to his fellow team members for help. "We don't have time to plan that far ahead, so as I'm doing things I have to think quickly, and probably I can ask somebody. I can ask Janis or Peggy to give an idea..."

In terms of disciplinary knowledge, Mark called himself a "generalist", but he felt particularly comfortable with math and the social sciences. In Mark's class, student participation frequently took the form of reading and discussion. Although students frequently worked in small groups there was little evidence that Mark established structures for cooperative learning. He was observed instead moving among groups assisting students and urging them to "work with each other."

Mark described himself as "the realist" on the team. When questioned about what this meant, Mark explained, "I guess sitting back and looking at the whole picture." During team meetings Mark"s most frequent contributions were practical or logistical reminders involving coordination of resources, use of space, and organizing and sequencing of activities. However, he was also a realist in terms of some major stakeholders in the work of the team--students and their parents. The following is one example.

> Because we've got to look at what the report card's going to be used for. It's going to be used for the sixth grade level and it's going to be used to communicate with the parents. And they're going to understand some things, and we're asking them to change some ideas too.

His concerns were consistent with his priorities as a "people person.

Mark's thinking about curriculum was practical rather than theoretical; it is deeply embedded in his knowledge of practice. "When you talk about curriculum theory to me, I just don't relate to that...I don't think in those terms." He explained that curriculum "is always moving. It's always changing. You have a knowledge base to understand, but curriculum is applying it, making sense out of it where students can use it."

In contrast to Peggy, who frequently situated her curriculum goals in the language of the literature of middle school restructuring, Mark drew solely on his own teaching experience for his beliefs about the needs of middle school students and the value of integrated curriculum. He viewed the course of study as a guide from which he made decisions about what to teach and how to teach it. Curriculum for Mark was more than the content to be learned: it was the way in which he made the content meaningful to students.

Case 3: Janis

Janis' interest in the Integrated team was prompted by questions she was asking herself about her own teaching . "So I guess the expectations were looking at what I was doing and not being completely happy with what that was." She was attracted by the prospect of "being on the edge, trying something new, trying it out and making it easier, and then if it's something that does work, then trying to bring others along."

Janis felt that, of the three teachers on the team, she had to change least in order to carry out the team's goals which seemed to her to be consistent with her own. She believed that for early adolescents peer and family relationships and issues of self-esteem were of primary importance and, further, that during middle school students were making crucial life choices and were at-risk for beginning many destructive behaviors. Therefore, many of Janis' curriculum decisions focused on meeting affective and social needs of students. She said that curriculum should be centered "on what the students are involved in, what's interesting to them, what's meaningful to them." For example, Janis said, "I know that I spent probably a full six weeks on drugs and alcohol and peer pressure and all that kind of stuff from the health perspective, and other people may have hit it for a week. Just because I think that's so important to these kids' self-esteem and where they're at."

Her experiences as a teacher consultant on affective education had equipped Janis with a repertoire of classroom activities to build students' self-esteem, and she initiated special school-wide programs for this purpose. The importance she attached to affective needs was also evident in her expressed views that learning should be fun and that extracurricular activities and personal recognition were important to the overall education of the child. Although middle school students are increasingly interested in adult issues, she said, "They're still kids at the middle school." Janis

felt that her classroom environment was more like an elementary school than a high school. She pointed out "the physical environment--the posters and that kind of stuff and activities around that people can do." She believed that learning should be fun.

> I think you need to have...the recognition, the fun things, the athletics, the intramurals, that kind of stuff need to be in the middle school program...I think that's an important part of the overall education of the child and their learning to work with each other in the fun things.

In addition to making learning more pleasurable for students, Janis intended her classroom environment to address her students' cognitive needs. She drew upon her repertoire of strategies for teaching LD students in order to appeal to various learning modalities. "They're not abstract learners yet. They need to be doing things with math...If you sit and read something, it's not going to be as meaningful as if you can see the stuff." Janis thought that learning was increased when students used their learning through applying it and teaching others. She held strong beliefs about the value of cooperative learning. She recognized the social benefits of working with others, but she also made it clear that she believed that the peer assistance offered by groups was an efficient learning technique.

> If I've explained something to the class and a student still doesn't get it, then I'm going to explain it basically the same way again...but the students best know how they understood it and can explain [to a peer] then in their terms..."

She also believed that cooperative learning was a meaningful approach to assessment. "If I can show you what you don't understand, then that shows that I understand that concept. I would much rather see students doing that than have them write down on paper how to do something."

An observer in Janis' classroom would be most likely to see students in small groups engaged in hands-on activities or taking part in a lively discussion led, but not dominated, by Janis. Janis was critical of teachers who "just talk on and on and nothing gets accomplished. "Typical of the lessons observed in her classroom was one of a series during a study of atoms. During one activity, after students had tried to count the grains of salt to cover the bottoms of tiny cups, Janis told them that there were about five billion atoms in one grain of salt and asked them to hypothesize how many

atoms might be in slightly larger objects. They later made individual models of atoms of various elements using creative materials and explained them to the class.

Janis displayed a considerable feeling of accountability for teaching disciplinary content, especially in math. She had recently participated in a university workshop where she learned new approaches to teaching math. Therefore, Janis accepted the primary task of planning for core math integration and planned math instruction to correspond with the pupil performance objectives for her grade level. However, she stated that no matter what the content, the processes of teaching and learning were most important. This belief helped to explain the high level of attention Janis gave to planning teaching strategies which would be engaging and developmentally appropriate for students.

She put thought and effort into helping students work cooperatively. "You need to teach cooperation skills. Give them lots of practice. You can't just expect kids to able to work together." Janis used a variety of specific structures for forming groups, assigning tasks within groups, and establishing both group goals and individual accountability. The attention to detail and structure seen in her planning for groupwork was characteristic of all aspects of her planning for instruction.

According to Peggy and Mark, the team looked to Janis to help "operationalize" their planning. Peggy said that Janis was expert at organizing "...all the detail things that one has to know to make something go smoothly." Janis also saw herself as "the organizer on the team". In team meetings she was observed to be concerned with how general planning was translated into what was actually going to happen in the classroom. When a particular instructional focus had been identified by the team, Janis was often the one to suggest a specific lesson idea to address it.

Janis took a practical approach to curriculum which took into account how what was taught related to how it was taught. She acknowledged a curriculum embodied in the course of study but was more interested in "looking at what I was actually doing in the classroom." The team, she said, did not plan what they would teach and then what steps they would use to teach it. Instead, "how we were going to be doing it came about as we were talking about what that content was going to be." She believed strongly that strong curriculums are context-specific. Teachers, she said, should avoid "canned" programs and instead develop curriculum based on the needs of specific populations, while remaining flexible to adjust to changing needs.

Interpretations of Recurring Themes

Analysis of the data across the three cases in this study yielded five recurring themes relevant to the research questions which form the focus for this paper. These are presented in Table 1 as generalizations that held true for all three participants from their perspectives and from mine. The next section of this paper will explain how each of these generalizations are supported by the data from individual cases. The analysis of these recurring themes will be followed by a discussion of several resulting conclusions and their implications for those interested in facilitating teachers' collaborative curriculum work.

A Common Curriculum Vision

A shared vision of curriculum purposes was believed by the teachers to be the single most crucial element in determining the success of the team's work. They believed that this enabled them to reach consensus on curriculum goals and to concentrate on planning and implementation. After sharing this year with the Integrated Team, I was impressed with the frequency with which the teachers talked about this common curriculum philosophy which they described as "child-centered." The common element of belief among these three individuals was the idea that curriculum should be based on the needs of particular students rather than on a pre-established body of content. The fact that the teachers shared this common vision of curriculum was related to the team's ability to reach consensus on such things as desired student outcomes, appropriate teaching strategies, evaluation processes, and curriculum content. The team's fundamental agreement on the purposes of curriculum allowed them more time and energy to concentrate on planning instruction.

Although teachers shared a common curricular philosophy, they were diverse in their motivations for change, curriculum orientations, and professional knowledge. This diversity meant, for example, that the term "child-centered" was interpreted differently by each teacher although a core of common meaning existed. For example, Peggy, influenced by the literature of middle school reform, stressed most the importance of meeting the developmental needs of early adolescents. Janis shared this concern for meeting developmental needs, but her teaching was also shaped by her

Table 1. Generalizations Across Cases

1. A shared vision of curriculum purposes was believed by the teachers to be the key element in determining the success of the team's change efforts.

2. The teachers' personal beliefs and concerns influenced their rationales for the curriculum envisioned by the team and their choices of the means to interpret curriculum intentions.

3. The teachers' individual knowledge influenced the ways in which they interpreted the team's envisioned curriculum.

4. The teachers all cited team collaboration as a source of shared knowledge and of joint construction of new knowledge.

5. The teachers believed that each played a different role on the team and that the diversity contributed to the team's effectiveness.

awareness of individual cognitive styles and emotional needs. Mark's child-centeredness was less focused on a specific developmental stage, but was based on a belief in the uniqueness and value of all people as individuals. This example illustrates that teachers' may use a shared term to describe philosophies that, while consistent with agreed upon practices, represent a variety of meanings for the individuals who hold them.

Teachers' Knowledge, Beliefs, and Concerns

Results indicated that teachers' individual knowledge, beliefs, and concerns influenced both their rationales for the curriculum changes envisioned by the team and their choices of the means to interpret the team's curriculum intentions. Key beliefs and concerns were identified which helped to define individual teachers' approach to curriculum planning and implementation. For all teachers close relationships were seen between their dominant beliefs and curriculum priorities and their instructional approaches. For example, Peggy's concern with preparing students for what she saw as "the real world" was reflected in her attitudes about content, learning processes, and her own role as a teacher. The three case studies yielded many such examples which are summarized in Table 2. This is not intended to suggest that a perfect match was found between envisioned curriculum and enacted curriculum. However, the recognition of these relationships does serve to underscore the relationship of teachers' beliefs and concerns with the curriculum decisions they make.

Examination of the interview and observation data revealed that the teachers were substantially in agreement on the types of instructional practices they espoused. Such practices included cooperative learning groups, active learning, hands-on activities, and attention to learning processes. However, each teacher justified these practices on the basis of different curriculum goals. These practices also appeared in varying degrees and took different forms in each classroom. Differences in personal focus may help to explain, at least in part, such questions as why cooperative learning looked very different in each of the three classrooms, why controversial issues were important content in Peggy's class, or why concrete, visual materials were seen most in Janis' class.

The teachers on the team held different kinds of knowledge which also affected the ways in which they interpreted the team's envisioned curriculum and the strategies they chose to achieve these purposes. Each teacher held a somewhat different body of content knowledge and a different

	Table 2. Teachers' Curriculum Orientations		
	Motivations for Change	Dominant Concerns	Instructional Strategies
Peggy	Implementing middle school philosophy Seeking professional challenge Advancing political goals	Addressing needs of adolescents Preparing students for "real world" Empowering learners "Making sense of knowledge"	Teacher models, builds structure, facilitates Cooperative learning, some structure Discussion of issues, concerns of students Students accessing, organizing, sharing knowledge with peers
Mark	Putting philosophy into action Working with respected peers Learning new ways to teach	Understanding, communicating "Selling ideas" to kids "Localizing" knowledge Seeing learning as a whole	Teacher-guided discussion, connects current events Teacher provides resources Cooperative learning, not structured Use of peers to explain
Janis	Asking questions about teaching Being on the "cutting edge" Sharing ideas with others	Getting kids involved Meeting affective and social needs Learning by doing Learning with peers	Use of manipulatives, visual, concrete learning Cooperative learning, skills explicitly taught Affective learning activities Use of peer tutoring

repertoire of instructional strategies. They also revealed differences in the degree to which they were able to bring other types of practical and theoretical knowledge to their curriculum deliberations. Peggy was the only one to exhibit substantial knowledge of current middle school trends. From her university courses, she also brought to the team an awareness of current educational issues, especially in language arts. Janis was able to contribute specialized knowledge of math and science, as well as a wide repertoire of concrete learning activities, cooperative learning techniques, and strategies for teaching learning disabled students.

Mark considered his most valuable knowledge to be his communication skills. He preferred the social studies because he could easily relate it to students' daily lives. However, in Mark's case, a lack of certain instructional and managerial knowledge created some stress and "feelings of inadequacy". Throughout the study Mark's most frequent response to a need for more knowledge was to consult with others, illustrating his belief in the value of personal communication. However, Mark's need for assistance was sometimes problematic because it demanded time and tact from his colleagues, who described the difficulty of talking about observed problems without hurting feelings. He had not yet developed a repertoire of the kinds of active learning strategies agreed upon by the team, and he did not know how to develop and maintain effective structures for managing cooperative learning groups. Therefore, he was unable to enact the plans of the team as they were envisioned.

Teacher Collaboration and Knowledge Construction

Teachers reported that the collaborative process of emergent planning, teaching, and evaluation resulted both in the sharing of professional knowledge and in the development through dialogue of significant new understandings and insights into their own teaching. Data from observations of team meetings revealed four principal types of activities through which knowledge was exchanged or constructed by team member. The first of these involved, not surprisingly, the sharing of individuals' lesson ideas, managerial procedures, and the experience of carrying out team plans. Janis, especially, was a frequent contributor of practical suggestions for operationalizing the team's curriculum intentions. A second kind of knowledge-sharing resulted from the teachers' bringing back to the team their experiences carrying out team plans. This kind of sharing was

observed to result in better understanding of the conceptual relationships among the content areas being taught by individuals. It also resulted in changes and refinements in teaching plans. Two other types of collaboration resulted in the construction of new knowledge for team members. The first occurred in response to specific needs as they arose in the emergent teaching/planning process. Through brainstorming and other problem-solving procedures, the team constructed knowledge which was not previously available to them as individuals. This was much more than the sum of the teachers' individual ideas because the teachers were constantly reconstructing their own understandings as they interacted with each other. The knowledge shared was thus not static, but instead was of a transactional nature, emerging through the nonlinear process of planning, implementation, sharing, revision, and continually consulting and evaluating. An illustration of this process can be seen in the team's unit planning procedures.

What Peggy had described as the "framework" for the curriculum planned by the Integrated Team was envisioned in a general way before the school year began. However, the overall plan was little more than a list of broad topics in a sequence which progressed from students' concern with self, to societal concerns, and finally, to global issues. Much more complex and significant was the planning that took place at weekly team meetings, especially during the weeks before a new unit was begun. Frequent observations of such meetings revealed similar planning sequences. Most often, Peggy would begin the planning for a particular unit by explaining how the central topics of the unit were related conceptually and how teaching could be divided among the three teachers. As she expressed it, "How are we going to make sense of it looking at it from three different angles--three different lenses?" Janis would begin adding ways that particular disciplinary content could support these concepts and suggesting ideas for specific learning activities. Mark would suggest lessons that he could contribute and would usually ask for suggestions. From this point on, planning would take a recursive form, moving between selecting instructional ideas and reconceptualizing the interrelationships among lessons. Individual teachers would adjust their teaching plans and modify their understandings of conceptual linkages among content areas as they engaged in dialogue with each other.

Finally, all three teachers described how team collaboration had contributed in practical and conceptual ways to more individual insights into their own teaching. Peggy explained that this was because they were forced to articulate and clarify for the others the ideas and visions in their own

minds. She believed that communicating her ideas actually helped her to understand them herself. "I think when you articulate things, when you say things, that's when you begin to make sense of things at a different level...Otherwise, it feels right and you know what you're doing, but you can't get your finger on it."

Janis and Mark reported that the experience of trying to plan instruction that was conceptually integrated changed the ways they thought about disciplinary content. Janis said, "I think when I've done chemistry in other years, it's been all the elements and all the compounds, but never related to anything. That's one of the main things that I've seen this time--how well it fit into the other areas." In team meetings Janis often engaged in dialogue with Peggy as they struggled to construct conceptual linkages among the content areas they taught and to plan appropriate learning strategies to show students these linkages. Mark, on the other hand, usually listened to these discussions. He stated that sometimes it was only as he was carrying out the team plans that he fully grasped how his part related to the whole. Mark, Janis, and Peggy all appeared to use the team's deliberations to create new meanings within their individual knowledge frameworks.

Diverse Team Roles

These teachers believed that each played a different role on the team and that their diversity contributed to the team's effectiveness. These roles, constructed and articulated by all three teachers early in the year, appeared to be a combination of teachers' self-assessments with their colleagues recognition of their talents and skills. Peggy was said to be the "conceptual" person, Janis was the "organizer", and Mark was the "realist" on the team. There was a high level of consensus among the team members about the ways in which each contributed to the team's work. Discussion of these roles was first observed in a team meeting and referred to often thereafter. Each teacher saw him or herself as contributing some skill or strength needed to support the team's efforts.

A strong correlation was noted between these perceived roles and the characteristic features of each teacher's personal curriculum orientation. The teachers on this team were found to hold a somewhat different body of content knowledge and a different repertoire of instructional strategies which also affected the ways in which they interpreted the team's envisioned curriculum and the strategies they chose to achieve these purposes. They also revealed differences in the degree to

which they were able to bring other practical and theoretical knowledge to their curriculum deliberations. For example, Peggy's role allowed her to explore her theoretical interests and academic knowledge while helping the team to conceptualize and articulate its intentions. Janis used her extensive knowledge of instructional strategies to help the team translate its intentions into specific lesson plans. Also her disciplinary knowledge made her primarily responsible for planning math instruction. Because Mark perceived himself as lacking in some kinds of curriculum knowledge, he had a more difficult task in defining how he could contribute to team functioning. The role he did adopt was closely related to his dominant concerns as "a people person". He communicated to his team the perspectives of the students, their families, and the larger community.

Conclusions and Implications

Most previous studies of teachers' curriculum work have focused on individual teachers in their own classrooms. This study supports many of their conclusions about the important effects of teachers' knowledge, beliefs, and concerns. An important further contribution of this study is its focus on how these teachers' individual orientations affect team deliberations.

A Shared Philosophy

The results from this study suggest that the curriculum work of a team is enhanced when its members perceive that they share a common philosophy which underlies curriculum purposes. The goals of the Integrated Team in this study went far beyond what is usually intended when teachers are organized into teams. These teachers were trying to extend the organizational concept of teaming in order to create for their grade level a totally integrated curriculum and to collaborate in all aspects of their teaching. This emphasis on curriculum made it more crucial that they shared a conception of what kind of changes were needed, rather than just having an openness to change in general. Teachers' fundamental agreement on the "why" of curriculum appeared to allow more concentration on the "how" of instructional planning. A shared philosophy also resulted in a greater validation of personal beliefs, more professional reflection, and a high level of commitment. This finding has important implications for those who wish to involve teachers more actively in

curriculum collaboration. In cases of teacher-initiated change, such as the effort of the Integrated Team, two factors appear to be crucial to the team's success. First, the teachers must have compatible, though not necessarily identical, curriculum assumptions and purposes. The teachers in this study believed strongly that "not just any teachers" could work together successfully. Philosophical compatibility should be therefore be considered when teams are formed. Second, the teams must be given plenty of time together in the early stages of team planning to negotiate common curriculum understandings.

The data revealed that it was through the collaborative processes such as defining goals for students, selecting curriculum content, and designing evaluation procedures that these teachers truly made visible to themselves and to each other their common core of belief. All the teachers believed that the time they spent getting to know each other better as teachers was essential. It is vital to a team's success in developing coherent curriculum plans that they be provided with ample time in their initial developmental stages to articulate their curriculum beliefs and reach consensus on philosophy and goals. It is to these that the team will return frequently to evaluate the decisions they make regarding content and instruction.

Individual Curriculum Interpretations

Even though they agreed on basic curriculum purposes, these teachers' individual knowledge, beliefs, and concerns led them to interpret these purposes in different ways and to value them for different reasons. The fact that all three endorsed content integration and active learning, for example, did not mean that teaching and learning occurred the same way in each of their classrooms. When teachers attempted to implement curriculum intentions stated by the team, they did so from the standpoint of their own knowledge and experience, drawing on individual areas of strength and comfort. The actual curriculum was therefore not a static plan, but was developed both in the team's intentions and in the individual classrooms.

The differences among the classrooms also reinforced the findings of previous studies which examined the role of teachers' knowledge and beliefs in determining the curriculum that students encounter (Grossman, 1990; Zumwalt, 1989; Paris, 1993). These studies suggest that one of the reasons that many curriculum innovations are said to "fail at the classroom door" is that such

innovations compete or conflict with the values and commitments of the teachers who are to implement them. One might expect then that in the present study, in which teachers carry out a curriculum plan they themselves developed, implementation would be more uniform. What was seen, in fact, was that each teacher drew on different knowledge and professional strengths in order to address somewhat different concerns. The actual curriculum was therefore not a static plan, but was developed in each classroom as each teacher interpreted the intentions of the team through various personal lenses.

It is important also to realize that even when teachers agree on proposed curriculum goals and desirable instructional strategies, they may, like Mark, lack the knowledge they need to actualize their goals. To some extent his fellow team members served as a resource for him, but this demand on their time was a source of additional stress. Those who wish to facilitate curriculum change need to be mindful of the necessity of supporting teachers with assistance and additional resources as they perceive the need for more knowledge.

Strength of Diversity

The diversity among team members was both a source of stress and of strength. The potential for stress was referred to by all three teachers and stemmed from differences in personality, individual priorities, and classroom management styles. However, during team meetings and individual interviews team members adamantly insisted that any friction resulting from these differences was compensated for by the strengths that their diversity gave the team. The advantages cited by the teachers centered on the ways that curriculum was enriched for students because they could combine their knowledge of teaching all the content areas, their different pedagogical styles, and their various approaches to dealing with students. The observational data from this teaching team suggested the importance of teachers' possessing complementary bodies of content knowledge and instructional skills and a balance of personal styles. It also appeared that the construction of "roles" was important in several ways. First, they served to validate the knowledge and personal styles of the individuals. Another benefit was that each individual was recognized as a valuable participant in the work of the team. Finally, the development of roles led to some division of labor in team planning and implementation.

That a team's diversity seemed to be more of a strength than a liability seems to be good news because of the diversity that exists among any school staff. The present study supports the contention that it is best to try to balance team members' areas of disciplinary expertise to assure curriculum balance and depth and breadth of content. Because this team self-selected to some extent, it can safely be concluded that these individuals felt a degree of compatibility from the beginning and that their degree of commitment to the team was very high. This commitment now seems to be a crucial variable affecting the willingness of teachers to accept the demands of increased curriculum work.

These findings suggest some major recommendations for those forming teaching teams. First, the team members must be compatible in terms of their fundamental beliefs about curriculum. Next, they should possess a varied body of pedagogical content knowledge. Ideally, they should have some choice about which individuals they work with. At the least, decisions about team composition should be made by someone who knows the teachers well enough to predict their philosophical compatibility with the envisioned change.

Collaboration and Knowledge Construction

The fact that teaming can result in an exchange of professional knowledge is so well-known as to need no further discussion, although the conditions that optimize this exchange continue to be explored. What is less obvious is that this collaboration also results in the creation of knowledge that was not previously available to the individual teachers. The teachers shared their experiences, their content knowledge and their repertoire of teaching strategies. They also drew upon their knowledge to help solve problems as they arose in the process of curriculum deliberations. However, closer observation indicated that through this sharing individual teachers were gaining significant new understandings and insights into their own teaching. First, teachers better understood the conceptual integration of the content they were teaching. Second, the teachers became more reflective about their own teaching through articulating their knowledge and beliefs to others.

Collaboration resulted in knowledge-sharing that was not only transmissive, but generative and specific to individuals. The literature on teacher teaming is full of references to benefits such

as increased collegiality and shared decision-making, as well as more discussion among teachers about students, instruction, and curriculum (Little, cited in Erb, 1992). However, sufficient attention has not yet been given to the degree to which the sharing of knowledge contributes to transforming and increasing the knowledge of individuals.

Such an awareness of the constructivist nature of the knowledge used in teachers' curriculum decision-making has great significance for those who have an interest in the professional development of teachers. They suggest that teacher teaming for collaborative curriculum development may have valuable potential as an avenue of staff development. The teachers on the Integrated Team believed that they were better teachers because they were collaborating on curriculum. Such focused professional knowledge-sharing led to more self-knowledge and to more reflection on practice. Frequently, attempts toward staff development are seen by teachers as intrusive or threatening. In contrast, this study and many others report that teachers see teaming as supportive and validating. Therefore, arrangements which encourage teacher collaboration on significant curriculum decisions could result in teachers who are more knowledgeable and proficient in their own practice.

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